(FILE 'HOME' ENTERED AT 13:34:05 ON 30 OCT 2002)

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 13:34:24 ON 30 OCT 2002

L1	12459	S	FOOT AND MOUTH DISEASE VIRUS
L2	3177	S	L1 AND VACCINE
L3	16405	S	L2 AND PILI OR FIMBRIAE
L4	1018	S	L3 AND (FUSION OR HYBRID OR CHIMERIC)
L5	0	S	L4 AND FOREGIN EPITOPES
L6	44	S	L4 AND FOREIGN EPITOPES
L7	21	DUP REM	L6 (23 DUPLICATES REMOVED)

7 ANSWER 1 OF 21 USPATFULL

AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 2002:272761 USPATFULL

TI Directed evolution of novel binding proteins

IN Ladner, Robert Charles, Ijamsville, MD, UNITED STATES
Guterman, Sonia Kosow, Belmont, MA, UNITED STATES
Roberts, Bruce Lindsay, Milford, MA, UNITED STATES
Markland, William, Milford, MA, UNITED STATES
Ley, Arthur Charles, Newton, MA, UNITED STATES
Kent, Rachel Baribault, Boxborough, MA, UNITED STATES

PI US 2002150881 A1 20021017

AI US 2001-781988 A1 20010214 (9)

RLI Continuation of Ser. No. US 1998-192067, filed on 16 Nov 1998, ABANDONED Continuation of Ser. No. US 1995-415922, filed on 3 Apr 1995, PATENTED Continuation of Ser. No. US 1993-9319, filed on 26 Jan 1993, PATENTED Division of Ser. No. US 1991-664989, filed on 1 Mar 1991, PATENTED Continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, ABANDONED Continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, ABANDONED

PRAI WO 1989-US3731 19890901

DT Utility

FS APPLICATION

LREP BROWDY AND NEIMARK, P.L.L.C., 624 Ninth Street, N.W., Washington, DC, 20001

CLMN Number of Claims: 18

ECL Exemplary Claim: 1

DRWN 16 Drawing Page(s)

LN.CNT 15696

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 2 OF 21 USPATFULL

AB A strategically modified hepatitis B core protein is described, where an insert is provided, preferably in an immunodominant region of the nucleocapsid protein, containing a chemically reactive amino acid residue. The modified hepatitis B core protein or its aggregated nucleocapsid protein particles can be pendently linked to a hapten to form a modified nucleocapsid conjugate. Such a conjugate is useful in the preparation of **vaccines** or antibodies. The modified hepatitis B core protein can also be modified to include a T cell epitope.

AN 2001:71101 USPATFULL

TI Strategically modified hepatitis B core proteins and their derivatives

IN Birkett, Ashley J., Solana Beach, CA, United States

PA Immune Complex Corporation, San Diego, CA, United States (U.S. corporation)

PI US 6231864 B1 20010515

AI US 1999-248588 19990211 (9)

PRAI US 1998-74537P 19980212 (60)

DT Utility
FS Granted
EXNAM Primary Examiner: Wortman, Donna C.
LREP Welsh & Katz, Ltd.
CLMN Number of Claims: 22
ECL Exemplary Claim: 1
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)
LN.CNT 1665
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 3 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
AB Based on the prediction of the hydrophilicity, epitopes, secondary structure and flexibility of the CS3 subunit, a novel vector pCSX72 which permits the insertion of **foreign epitopes** into CS3 at the position of 72nd aa was constructed. Two epitopes, the VP1 of FMDV and a ten-peptides epitope of C-myc, were displayed with it respectively. Compared with the two previously-constructed vectors, the vector pCSX72 expressed the **hybrid fimbriae** in higher level. Mice produced dual immune response against the CS3 and the inserted epitopes when they were immunized by injecting the live recombinant bacteria intraperitoneally.
AN 2002:99199 BIOSIS
DN PREV200200099199
TI Construction of a novel display vector deriving from CS3 **fimbriae** of human enterotoxigenic Escherichia coli.
AU Gao Rong-Kai; Zhang Zhao-Shan (1); Li Shu-Qin; Huang Cui-Fen
CS (1) Institute of Biotechnology, Academy of Military Medical Sciences, Beijing, 100071: Zhangzs@nic.bmi.ac.cn China
SO Acta Genetica Sinica, (Oct., 2001) Vol. 28, No. 10, pp. 971-980. print. ISSN: 0379-4172.
DT Article
LA English

L7 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
AB The gene fragments coding for C3 epitope of poliovirus and a ten-peptides epitope of C-myc were synthesized and inserted into pCSB136 and pCSX72 resp. to confirm the possibility of pCSB136 and pCSX72 as vectors for displaying heterologous epitopes. The recombinants were screened by whole-strain PCR. The expression of recombinant proteins were detected by whole-cell ELISA and electronic microscopy. The results indicated the recombinant proteins were expressed as **hybrid fimbriae**, and the antigenicity of both CS3 and inserted epitopes kept. All results above showed vectors pCSB136 and pCSX72 could be used to display the **foreign epitopes**.
AN 2001:825914 CAPLUS
DN 137:77480
TI Expression of C3 epitope of poliovirus and a ten-peptides epitope of C-myc on surface of recombinant bacteria
AU Gao, Rongkai; Zhang, Zhaoshan; Li, Shuqin; Huang, Cuifen
CS Beijing Institute of Biotechnology, Beijing, 100071, Peop. Rep. China
SO Shengwu Gongcheng Xuebao (2001), 17(5), 539-542
CODEN: SGXUED; ISSN: 1000-3061
PB Kexue Chubanshe
DT Journal
LA Chinese

L7 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2002 ACS
AB A method of generating **chimeric** genes encoding a **fusion** product of the agfA fimbrin and a foreign protein, such as an antigen, in a Salmonella host by chromosomal gene replacement is described. One embodiment of the invention is exemplified by the expression of a model epitope (PT3) obtained from the GP63 protein of Leishmania major, by formation of recombinant agfA genes encoding PT3 fusing proteins

recombined at 10 different sites throughout the agfA gene. These **fusions** are shown to be expressed in the thin aggregative **fimbriae** on the surface of bacterial cell. The AgfA fimbrin of Salmonella (CsgA for E. coli) provides a flexible and stable vehicle for the expression of **foreign epitopes** in enterobacteriaceae and the subsequent thin aggregative fimbrae (curli) expression product provide an ideal organelle for presentation of the **foreign epitopes** at the cell surface.

AN 2000:725786 CAPLUS
DN 133:306338
TI Use of the agfA fimbrin of Salmonella to present foreign proteins on the surface of a bacterial host
IN White, Aaron P.; Doran, James L.; Collison, S. Karen; Kay, William W.
PA Innovation and Development Corporation, University of Victoria, Can.
SO PCT Int. Appl., 139 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000060102	A2	20001012	WO 2000-CA356	20000405
	WO 2000060102	A3	20010104		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI US 1999-127888P P 19990405

L7 ANSWER 6 OF 21 USPATFULL
AB A CS31A protein capsule subunit having an aminoacid sequence modified by at least one heterologous peptide, the CS31A protein capsule comprising said subunit, and micro-organisms having the CS31A protein capsule with its subunit aminoacid sequence modified by at least one heterologous peptide, are disclosed. Methods for preparing said subunits, CS31A protein capsules comprising same, and micro-organisms having CS31A protein capsules, as well as the use thereof for preparing vaccines, producing peptides and preparing immunoassays, are also disclosed.
AN 2000:98007 USPATFULL
TI ClpG subunit of CS31A protein capsule containing heterologous peptides
IN Girardeau, Jean-Pierre, Saint Genes Champanelle, France
Martin, Christine, La Roche Blanche, France
Mechin, Marie-Claire, Beaumont, France
Der Vartanian, Maurice, Saint Genes Champanelle, France
Bousquet, Fran.cedilla.ois, Ceyrat, France
PA Institut National de la Recherche Agronomique-INRA, Paris, France (non-U.S. corporation)
PI US 6096321 20000801
WO 9414967 19940707
AI US 1996-491954 19960216 (8)
WO 1993-FR1281 19931221
19960216 PCT 371 date
19960216 PCT 102(e) date
PRAI FR 1992-15464 19921222
DT Utility
FS Granted
EXNAM Primary Examiner: Chin, Christopher L.; Assistant Examiner: Ryan, V.
LREP Schnader Harrison Segal & Lewis LLP
CLMN Number of Claims: 29

ECL Exemplary Claim: 1
DRWN 61 Drawing Figure(s); 53 Drawing Page(s)
LN.CNT 3468
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 7 OF 21 USPATFULL
AB The present invention is concerned with vaccination of mammals against GnRH. The vaccine comprises a GnRH peptide conjugate to E. coli fimbrial-filaments and elicits an immune response against GnRH.
AN 2000:12446 USPATFULL
TI Carrier system against GnRH
IN Van Der Zee, Anna, Woerden, Netherlands
Van Die, Irma Marianne, Gouda, Netherlands
Hoekstra, Willem Pieter Martin, Zeist, Netherlands
Gielen, Josephus Theodorus, St. Antohonis, Netherlands
PA Akzo Nobel N.V., Arnhem, Netherlands (non-U.S. corporation)
PI US 6019983 20000201
AI US 1995-521079 19950829 (8)
RLI Continuation of Ser. No. US 1993-78661, filed on 16 Jun 1993, now abandoned
PRAI NL 1982-92201775 19820619
DT Utility
FS Granted
EXNAM Primary Examiner: Sidberry, Hazel F.
LREP Gormley, Mary E., Blackstone, William M.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN 9 Drawing Figure(s); 9 Drawing Page(s)
LN.CNT 1366
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 8 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 3
AB Recombinant live oral vaccines expressing pathogen-derived antigens offer a unique set of attractive properties. Among these are the simplicity of administration, the capacity to induce mucosal and systemic immunity, and the advantage of permitting genetic manipulation for optimal antigen presentation. In this study, the benefit of having a heterologous antigen expressed on the surface of a live vector rather than intracellularly was evaluated. Accordingly, the immune response of mice immunized with a Salmonella enterica serovar Typhimurium vaccine strain expressing the Escherichia coli 987P fimbrial antigen on its surface (Fas+) was compared with the expression in the periplasmic compartments (Fas-). Orally immunized BALB/c mice showed that 987P fimbriated Salmonella serovar Typhimurium CS3263 (aroA asd) with pCS151 (fas+ asd+) elicited a significantly higher level of 987P-specific systemic immunoglobulin G (IgG) and mucosal IgA than serovar Typhimurium CS3263 with pCS152 (fasD mutant, asd+) expressing 987P periplasmic antigen. Further studies were aimed at determining whether the 987P **fimbriae** expressed by serovar Typhimurium chi4550 (cya crp asd) could be used as carriers of **foreign epitopes**. For this, the vaccine strain was genetically engineered to express **chimeric fimbriae** carrying the transmissible gastroenteritis virus (TGEV) C (379-388) and A (521-531) epitopes of the spike protein inserted into the 987P major fimbrial subunit FasA. BALB/c mice administered orally serovar Typhimurium chi4550 expressing the **chimeric fimbriae** from the tet promoter in pCS154 (fas+ asd+) produced systemic antibodies against both fimbria and the TGEV C epitope but not against the TGEV A epitope. To improve the immunogenicity of the **chimeric fimbriae**, the in vivo inducible nirB promoter was inserted into pCS154, upstream of the fas genes, to create pCS155. In comparison with the previously used vaccine, BALB/c mice immunized orally with serovar Typhimurium chi4550/pCS155 demonstrated significantly higher levels of serum IgG and mucosal IgA against 987P fimbria. Moreover, mucosal IgA against the TGEV C

epitope was only detected with serovar Typhimurium chi4550/pCS155. The induced antibodies also recognized the epitopes in the context of the full-length TGEV spike protein. Hence, immune responses to heterologous **chimeric fimbriae** on Salmonella vaccine vectors can be optimized by using promoters known to be activated in vivo.

AN 2000:291353 BIOSIS
DN PREV200000291353
TI Mucosal and systemic immune responses to **chimeric fimbriae** expressed by Salmonella enterica serovar Typhimurium vaccine strains.
AU Chen, Huaiqing; Schifferli, Dieter M. (1)
CS (1) University of Pennsylvania School of Veterinary Medicine, 3800 Spruce St., Philadelphia, PA, 19104-6049 USA
SO Infection and Immunity, (June, 2000) Vol. 68, No. 6, pp. 3129-3139. print. ISSN: 0019-9567.
DT Article
LA English
SL English

L7 ANSWER 9 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 4
AB Objective: To construct the display vector based on the CS3 **pili** of enterotoxigenic Escherichia coli. Methods: The secondary structure antigen epitopes, hydrophilicity and flexibility of CS3 subunit were predicted with the Goldkey software. Based on the prediction, the site for inserting heterologous epitopes was chosen. Mutation was done using the overlapping extention PCR. The gene fragment coding for the VP1 of **foot-mouth disease virus** (FMDV) was synthesized and inserted into CS3. The surface expression of **hybrid** protein was examined using whole-cell ELISA, electron microscopy and immuno-electron microscopy. Mice were immunized by injecting the recombinant bacteria intraperitoneally to evaluate the immunogenicity of the **hybrid** proteins. Results: The VP1 of FMDV was displayed on the surface of the recombinant cells. The **fusion** proteins were expressed as **hybrid pili**. Mice produced antibody response against CS3 and the VP1 of FMDV. Conclusion: The CS3 **pili** can be a vector to express the **foreign epitopes** on the surface of the recombinant cells, and it may probably be an expression vector for the construction of the live gene engineering **vaccine**.

AN 2001:49887 BIOSIS
DN PREV200100049887
TI Construction of a display vector based on the CS3 **pili** of enterotoxigenic Escherichia coli.
AU Gao Rongkai; Zhang Zhaoshan (1); Li Shuqin
CS (1) Academy of Military Medical Science, Institute of Biotechnology, Beijing, 100071: zhangzs@nic.bmi.ac.cn China
SO Zhonghua Weishengwuxue He Mianyixue Zazhi, (November, 2000) Vol. 20, No. 6, pp. 485-488. print. ISSN: 0254-5101.
DT Article
LA Chinese
SL Chinese; English

L7 ANSWER 10 OF 21 SCISEARCH COPYRIGHT 2002 ISI (R)
AB The display of peptide segments on the surface of bacteria offers many new and exciting applications in biotechnology and medical research. Fimbria-assisted display of heterologous sequences is a paradigm for **chimeric** organelle display on bacteria. Fimbriac are particularly attractive candidates for epitope display for several reasons: (1) they are present in extremely high numbers at the cell surface, (2) they are strong immunogens, (3) they possess inherent adhesive properties, and (4) they can be easily purified. The majority of work dealing with fimbria-assisted peptide display has been focused on the development of

recombinant vaccines. A number of different fimbrial types have been used to display immune-relevant sectors of various foreign proteins. **Chimeric** fimbrial vaccines can be used in the context of purified proteins, however the potential also exists to exploit this technology for the development of live recombinant vaccines. Work has also bern performed demonstrating the amenability of **fimbriae** towards the powerful technology of random peptide display. This review summarises the current state of research in this field.

AN 2000:632511 SCISEARCH
GA The Genuine Article (R) Number: 344MZ
TI **Fimbriae**-assisted bacterial surface display of heterologous peptides
AU Klemm P (Reprint); Schembri M A
CS TECH UNIV DENMARK, DEPT MICROBIOL, BLDG 301, DK-2800 LYNGBY, DENMARK (Reprint)
CYA DENMARK
SO INTERNATIONAL JOURNAL OF MEDICAL MICROBIOLOGY, (JUL 2000) Vol. 290, No. 3, pp. 215-221.
Publisher: URBAN & FISCHER VERLAG, BRANCH OFFICE JENA, P O BOX 100537, D-07705 JENA, GERMANY.
ISSN: 1438-4221.
DT Article; Journal
FS LIFE
LA English
REC Reference Count: 41
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L7 ANSWER 11 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 5

AB The strong immunogenicity of bacterial **fimbriae** results from their polymeric and proteinaceous nature, and the protective role of these immunogens in experimental or commercial vaccines is associated with their capacity to induce antiadhesive antibodies. Fimbria-mediated intestinal colonization by enteropathogens typically leads to similar antibody responses. The possibility of taking advantage of these properties was investigated by determining whether enteroadhesive **fimbriae**, like the 987P **fimbriae** of enterotoxigenic Escherichia coli, can serve as carriers for foreign antigens without losing their adhesive characteristics. Random linker insertion mutagenesis of the fasA gene encoding the major 987P subunit identified five different mutants expressing wild-type levels of fimbriation. The linker insertion sites of these mutants were used to introduce three continuous segments of viral surface glycoproteins known to be accessible to antibodies. These segments encode residues 11 to 19 or 272 to 279 of herpes simplex virus type 1 (HSV-1) glycoprotein D (gD(11-19) and gD(272-279), respectively) or residues 379 to 388 of the transmissible gastroenteritis virus (TGEV) spike protein (S(379-388)). Studies of bacteria expressing **fimbriae** incorporating mutated FasA subunits alone or together with wild-type FasA subunits (**hybrid fimbriae**) indicated that **foreign epitopes** were best exported and displayed on assembled **fimbriae** when they were inserted near the amino terminus of FasA. Fimbriated bacteria expressing FasA subunits carrying the HSV gD(11-19) or the TGEV S(379-388) epitope inserted between the second and third residues of mature FasA elicited high levels of foreign epitope antibodies in all rabbits immunized parenterally. Antibodies against the HSV epitope were also shown to recognize the epitope in the context of the whole gD protein. Because the 987P adhesive subunit FasG was shown to be present on mutated **fimbriae** and to mediate bacterial attachment to porcine intestinal receptors, polymeric display of **foreign epitopes** on 987P offers new opportunities to test the potential beneficial effect of enteroadhesion for mucosal immunization and protection against various enteric pathogens.

AN 1999:99340 BIOSIS
DN PREV199900099340

TI Polymeric display of immunogenic epitopes from herpes simplex virus and transmissible gastroenteritis virus surface proteins on an enteroadherent fimbria.
AU Rajini Rani, D. B.; Bayer, Manfred E.; Schifferli, Dieter M. (1)
CS (1) Univ. Pa. Sch. Veterinary Med., 3800 Spruce St., Philadelphia, PA 19104-6049 USA
SO Clinical and Diagnostic Laboratory Immunology, (Jan., 1999) Vol. 6, No. 1, pp. 30-40.
ISSN: 1071-412X.
DT Article
LA English

L7 ANSWER 12 OF 21 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.
AN 1998:143904 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert Charles, Ijamsville, MD, United States
Gutterman, Sonia Kosow, Belmont, MA, United States
Roberts, Bruce Lindsay, Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur Charles, Newton, MA, United States
Kent, Rachel Baribault, Boxborough, MA, United States
PA Dyax, Corp., Cambridge, MA, United States (U.S. corporation)
PI US 5837500 19981117
AI US 1995-415922 19950403 (8)
RLI Continuation of Ser. No. US 1993-9319, filed on 26 Jan 1993, now patented, Pat. No. US 5403484 which is a division of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Ulm, John
LREP Cooper, Iver P.
CLMN Number of Claims: 43
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15973
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 13 OF 21 USPATFULL
AB The present invention is concerned with vaccination of mammals against GnRH. The vaccine comprises a GnRH peptide conjugate to E. coli fimbrial-filaments and elicits an immune response against GnRH.
AN 97:101896 USPATFULL
TI Carrier system against GNRH
IN Van Der Zee, Anna, Woerden, Netherlands

Van Die, Irma Marianne, Gouda, Netherlands
Hoekstra, Willem Pieter Martin, Zeist, Netherlands
Gielen, Josephus Theodorus, St. Antohonis, Netherlands
PA AKZO Nobel N.V., Arnhem, Netherlands (non-U.S. corporation)
PI US 5684145 19971104
AI US 1995-453588 19950530 (8)
RLI Division of Ser. No. US 1993-78661, filed on 16 Jun 1993, now abandoned
PRAI NL 1992-1775 19920618
DT Utility
FS Granted
EXNAM Primary Examiner: Sidberry, Hazel F.
LREP Gormley, Mary E.
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 9 Drawing Figure(s); 9 Drawing Page(s)
LN.CNT 1299
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 14 OF 21 SCISEARCH COPYRIGHT 2002 ISI (R)
AB The potential of the major structural protein of type 1 **fimbriae** as a display system for heterologous sequences was tested. As a reporter-epitope, a heterologous sequence mimicking a neutralizing epitope of the cholera toxin B chain was inserted, in one or two copies, into four different positions in the fimA gene. This was carried out by introduction of new restriction sites by PCR-mediated site-directed mutagenesis of fimA in positions predicted to correspond to optimally surface-located regions of the subunit protein. Subsequently, the synthetic cholera-toxin-encoding DNA segment was inserted. Several of the chosen positions seemed amenable even for large foreign inserts; the **chimeric** proteins were exposed on the bacterial surface and the cholera toxin epitope was authentically displayed, i.e. it was recognized on bacteria by specific antiserum. Display of **chimeric** **fimbriae** was tested with respect to host background in three different Escherichia coli strains, i.e. an isogenic set of K-12 strains, differing in the presence of an indigenous fim gene cluster, as well as a wild-type isolate. Immunization of rabbits with purified **chimeric** **fimbriae** resulted in serum which specifically recognized cholera toxin B chain, confirming the utility of the employed strategy.
AN 97:462137 SCISEARCH
GA The Genuine Article (R) Number: XE251
TI Authentic display of a cholera toxin epitope by **chimeric** type 1 **fimbriae**: Effects of insert position and host background
AU StentebjergOlesen B; Pallesen L; Jensen L B; Christiansen G; Klemm P (Reprint)
CS TECH UNIV DENMARK, DEPT MICROBIOL, BLDG 301, DK-2800 LYNGBY, DENMARK (Reprint); TECH UNIV DENMARK, DEPT MICROBIOL, DK-2800 LYNGBY, DENMARK; AARHUS UNIV, DEPT MED MICROBIOL, DK-8000 AARHUS C, DENMARK
CYA DENMARK
SO MICROBIOLOGY-UK, (JUN 1997) Vol. 143, Part 6, pp. 2027-2038.
Publisher: SOC GENERAL MICROBIOLOGY, HARVEST HOUSE 62 LONDON ROAD, READING, BERKS, ENGLAND RG1 5AS.
ISSN: 1350-0872.
DT Article; Journal
FS LIFE
LA English
REC Reference Count: 34
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L7 ANSWER 15 OF 21 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic

package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 96:101466 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corporation, Cambridge, MA, United States (U.S. corporation)
PI US 5571698 19961105
AI US 1993-57667 19930618 (8)
DCD 20100629
RLI Continuation of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Ulm, John
LREP Cooper, Iver P.
CLMN Number of Claims: 83
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15323
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 16 OF 21 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 95:29292 USPATFULL
TI Viruses expressing **chimeric** binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States

Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corporation, Cambridge, MA, United States (U.S. corporation)
PI US 5403484 19950404
AI US 1993-9319 19930126 (8)
RLI Division of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
PRAI WO 1989-3731 19890901
DT Utility
FS Granted
EXNAM Primary Examiner: Hill, Jr., Robert J.; Assistant Examiner: Ulm, John D.
LREP Cooper, Iver P.
CLMN Number of Claims: 49
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 14368
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 17 OF 21 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.
AN 93:52487 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corp., Cambridge, MA, United States (U.S. corporation)
PI US 5223409 19930629
AI US 1991-664989 19910301 (7)
RLI Continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned And a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Hill, Jr., Robert J.; Assistant Examiner: Ulm, John D.
LREP Cooper, Iver P.
CLMN Number of Claims: 66
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15410
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 18 OF 21 USPATFULL

AB The present invention relates to recombinant vector/host systems which can direct the expression of foreign genes under the control of the Heliothis polyhedrin promoter. Using the systems of the present invention, a heterologous gene of interest can be expressed as an unfused peptide or protein, a **fusion** protein, or as a recombinant occlusion body which comprises crystallized polyhedrin **fusion** proteins bearing the heterologous gene product on the surface of or within the occlusion body. The recombinant proteins or occlusion bodies of the present invention have uses in **vaccine** formulations and immunoassays, as biological insecticides, and as expression systems for the production of foreign peptides or proteins.

AN 91:66733 USPATFULL

TI Heliothis expression systems

IN Fraser, Malcolm J.; South Bend, IN, United States
Rosen, Elliot D., South Bend, IN, United States
Ploplis, Victoria A., South Bend, IN, United States

PA American Biogenetic Science, Inc., Copiague, NY, United States (U.S. corporation)

PI US 5041379 19910820

AI US 1988-168109 19880314 (7)

RLI Continuation-in-part of Ser. No. US 1987-26499, filed on 16 Mar 1987, now abandoned

DT Utility

FS Granted

EXNAM Primary Examiner: Schwartz, Richard A.; Assistant Examiner: Peet, Richard C.

LREP Pennie & Edmonds

CLMN Number of Claims: 15

ECL Exemplary Claim: 1

DRWN 26 Drawing Figure(s); 25 Drawing Page(s)

LN.CNT 3494

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 19 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 6

AB The K88 **fimbriae** of enterotoxigenic Escherichia coli are strongly immunogenic antigens that can be used to evoke protective immunity. To find out whether these **fimbriae** can be used as carriers for **foreign epitopes**, a high variable region present in the primary structure of the different K88 variants was replaced with five different heterologous epitopes to investigate to what extent these insertions affected the expression, assembly (biogenesis), stability and immunogenic properties of the resulting **hybrid fimbriae**. Amino acid residues 163-173, were replaced using site-directed in vitro mutagenesis and the **hybrid fimbriae** were tested for these aspects using ELISA, immunoelectronmicroscopy and immunoblotting. Replacement of this highly variable region did not affect the biosynthesis of **fimbriae**, although all mutations tested resulted in a reduced expression depending on the epitope inserted. Testing of the different **hybrid fimbriae** with a panel of monoclonal antibodies raised against the various K88 serotypes K88ab, K88ac and K88ad indicated that replacement of amino acid sequence 163-173 did not affect conserved or K88ab specific epitopes but the K88ac and K88ad specific conformation was lost. Immunization with **hybrid fimbriae** raises antibodies specific for the inserted heterologous epitopes.

AN 1990:426380 BIOSIS

DN BA90:87181

TI K88 **FIMBRIAE** AS CARRIERS OF HETEROLOGOUS ANTIGENIC DETERMINANTS.

AU BAKKER D; VAN ZIJDERVELD F G; VAN DER VEEN S; OUDEGA B; DE GRAAF F K

CS BIOLOGISCH LABORATORIUM, VRIJE UNIVERSITEIT, DE BOELELAAN 1087, 1081 HV AMSTERDAM, NETHERLANDS.

SO MICROB PATHOG, (1990) 8 (5), 343-352.
CODEN: MIPAEV. ISSN: 0882-4010.
FS BA; OLD
LA English

L7 ANSWER 20 OF 21 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 7
AB Hypervariable regions (HRs) of the major subunit of F11 **fimbriae** were exploited for insertion of **foreign epitopes**. Two insertion vectors were created that contain a unique cloning site in HR1 or HR4 respectively. Several oligonucleotides, coding for antigenic determinants derived from different pathogens, were cloned in both insertion vectors. **Hybrid** fimbrial subunits were generally shown to be assembled in **fimbriae** when the length of the inserted peptide did not exceed 14 amino acids. The inserted peptides appeared to be exposed in the fimbrial content. One **hybrid** fimbrial protein induced detectable levels of antibodies against the inserted epitope if injected into mice.
AN 1990:494282 BIOSIS
DN BA90:122628
TI EXPRESSION OF **FOREIGN EPITOPES** IN P-**FIMBRIAE** OF ESCHERICHIA-COLI.
AU VAN DIE I; VAN OOSTERHOUT J; VAN MEGEN I; BERGMANS H; HOEKSTRA W; ENGER-VALK B; BARTELING S; MOOI F
CS DEP. MEDICAL CHEMISTRY, VRIJE UNIVERSITEIT, VAN DER BOECHORSTSTRAAT 7, 1007 MC AMSTERDAM, NETH.
SO MOL GEN GENET, (1990) 222 (2-3), 297-303.
CODEN: MGGEAE. ISSN: 0026-8925.
FS BA; OLD
LA English

L7 ANSWER 21 OF 21 USPATFULL
AB The present invention is directed to recombinant baculoviruses which encode **fusion** polyhedrin proteins capable of forming occlusion bodies containing foreign peptides. The recombinant baculoviruses of the invention are formed by insertion into or replacement of regions of the polyhedrin gene that are not essential for occlusion body formation, with foreign DNA fragments by recombinant DNA techniques. The recombinant occlusion bodies produced in accordance with the present invention have uses in **vaccine** formulations, immunoassays, immobilized enzyme reactions, as biological insecticides, and as expression vectors.
AN 89:80739 USPATFULL
TI Recombinant baculovirus occlusion bodies in **vaccines** and biological insecticides
IN Fraser, Malcolm J., South Bend, IN, United States
Rosen, Elliot D., South Bend, IN, United States
Ploplis, Victoria A., South Bend, IN, United States
PA American Biogenetic Sciences, Inc., Copiague, NY, United States (U.S. corporation)
PI US 4870023 19890926
AI US 1988-153736 19880208 (7)
RLI Continuation-in-part of Ser. No. US 1987-26498, filed on 16 Mar 1987, now abandoned which is a continuation-in-part of Ser. No. US 1987-26499, filed on 16 Mar 1987
DT Utility
FS Granted
EXNAM Primary Examiner: Wiseman, Thomas G.; Assistant Examiner: Seidman, Stephanie
LREP Pennie & Edmonds
CLMN Number of Claims: 51
ECL Exemplary Claim: 1
DRWN 28 Drawing Figure(s); 26 Drawing Page(s)
LN.CNT 3868

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

(FILE 'HOME' ENTERED AT 11:23:50 ON 30 OCT 2002)

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 11:24:04 ON 30 OCT 2002

L1	82	S	VAN DIE, IRMA/AU
L2	0	S	FOREGIN EPITOPE
L3	890	S	FOREIGN EPITOPE
L4	1	S	L1 AND L3
L5	2	S	L1 AND VACCINE
L6	0	S	VAN OOSTERNOUT, JOOST/AU
L7	25	S	BERGMANS, HANS/AU
L8	1	S	L7 AND L3
L9	0	S	L1 AND PROTECTIVE
L10	732	S	L1 AND IMMUNIZ OR VACINA?
L11	14406	S	L3 AND FIMBRIAE OR PILI
L12	1267	S	L11 AND VACCINE
L13	17	S	L12 AND PAPA
L14	13	DUP REM	L13 (4 DUPLICATES REMOVED)

FILE 'STNGUIDE' ENTERED AT 11:36:57 ON 30 OCT 2002

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 11:37:49 ON 30 OCT 2002

L15	1	S	L14 AND L3

L14 ANSWER 1 OF 13 USPATFULL
AB The present invention provides bacterial immunogenic agents for administration to humans and non-human animals to stimulate an immune response. Also provided are methods for vaccination of mammalian species, especially human patients, with variants of the E. coli FimH protein, said variants being derived from different strains of E. coli, and to production of antibodies that protect the **vaccine** recipient against infection by pathogenic bacterial species. In another aspect the invention provides antibodies against such proteins and protein complexes that may be used as diagnostics and/or as protective/treatment agents for pathogenic bacterial species. A plasmid-based method of producing polypeptides, especially fused polypeptides, such as the complex of a bacterial chaperone and a bacterial adhesin, is also disclosed.
AN 2002:272472 USPATFULL
TI FimH adhesin proteins and methods of use
IN Langermann, Solomon, Baltimore, MD, UNITED STATES
Revel, Andrew, Dallas, TX, UNITED STATES
Auguste, Christine, Germantown, MD, UNITED STATES
Burlein, Jeanne, Springfield, VA, UNITED STATES
PI US 2002150587 A1 20021017
AI US 2001-900575 A1 20010706 (9)
PRAI US 2000-216750P 20000707 (60)
DT Utility
FS APPLICATION
LREP Alan J. Gran, Esq., c/o CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN, 6 Becker Farm Road, Roseland, NJ, 07068
CLMN Number of Claims: 38
ECL Exemplary Claim: 1
DRWN 17 Drawing Page(s)
LN.CNT 2728

L14 ANSWER 2 OF 13 USPATFULL
AB The invention relates to compositions for the induction of anti-IgE antibodies in order to prevent or inhibit IgE-mediated disorders. The compositions contain carriers foreign to the immunized human or animal coupled to polypeptides containing fragments of the IgE molecule. The fragment of the IgE molecule includes the constant CH1 and/or the CH4 domain of the IgE molecule. The composition is administered to humans or animals in order to induce antibodies specific for endogenous IgE antibodies. These induced anti-IgE antibodies reduce or eliminate the pool of free IgE in the serum. Since many allergic diseases are mediated by IgE, IgE-mediated disorders are ameliorated in treated mammals.
AN 2002:265550 USPATFULL
TI Compositions for inducing self-specific anti-IgE antibodies and uses thereof
IN Bachmann, Martin F., Winterhur, SWITZERLAND
Renner, Wolfgang A., Zurich, SWITZERLAND
PA Cytos Biotechnology AG (non-U.S. corporation)
PI US 2002146422 A1 20021010
AI US 2001-916230 A1 20010727 (9)
PRAI US 2000-221841P 20000728 (60)
DT Utility
FS APPLICATION
LREP STERNE, KESSLER, GOLDSTEIN & FOX PLLC, 1100 NEW YORK AVENUE, N.W., SUITE 600, WASHINGTON, DC, 20005-3934
CLMN Number of Claims: 46
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 2138
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 3 OF 13 USPATFULL
AB A method of producing **pili** and **vaccines** containing

pili are described using bacteria that express at least one immunogenic peptide in a **PapA** region that does not normally contain such a peptide.

AN 2002:258441 USPATFULL
TI Immunogenic **pili** presenting foreign peptides, their production and use
IN O'Hanley, Peter, Washington, DC, UNITED STATES
Denich, Kenneth, Edmonton, CANADA
Schmidt, M. Alexander, Muenster, GERMANY, FEDERAL REPUBLIC OF
PI US 2002142008 A1 20021003
AI US 2001-833079 A1 20010412 (9)
PRAI US 2000-196491P 20000412 (60)
DT Utility
FS APPLICATION
LREP FOLEY AND LARDNER, SUITE 500, 3000 K STREET NW, WASHINGTON, DC, 20007
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 5 Drawing Page(s)
LN.CNT 967
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 4 OF 13 USPATFULL
AB A protein construct comprising a pilus protein portion, preferably a structurally stabilized pilus-protein, and an additional, or effector, portion other than a pilus protein or chaperone and wherein said effector portion serves to stabilize the pilus protein portion and to confer a therapeutic activity, such as **vaccine** activity or anti-microbial or anticancer activity, on the protein construct is disclosed. Such effector portion commonly comprises a donor strand complementary segment capable of structurally stabilizing a pilus protein subunit and attaching the auxiliary portion to said subunit to form the pilus protein analog of the invention. Methods of using said protein constructs are also disclosed as well as the formation and use of analogs comprising fragments of a pilus protein linked to effector components to produce immunogenic and/or therapeutic activity.
AN 2002:164423 USPATFULL
TI Therapeutic compounds structurally-linked to bacterial polypeptides
IN Hultgren, Scott J., Town and Country, MO, UNITED STATES
Langermann, Solomon, Baltimore, MD, UNITED STATES
Sauer, Frederic G., St. Louis, MO, UNITED STATES
PI US 2002086037 A1 20020704
AI US 2001-27350 A1 20011228 (10)
PRAI US 2000-257880P 20001222 (60)
DT Utility
FS APPLICATION
LREP CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,, STEWART & OLSTEIN, 6 Becker Farm Road, Roseland, NJ, 07068
CLMN Number of Claims: 65
ECL Exemplary Claim: 1
DRWN 10 Drawing Page(s)
LN.CNT 1706
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 5 OF 13 USPATFULL
AB The present invention relates to novel genes located in two chromosomal regions within uropathogenic E. coli that are associated with virulence. These chromosomal regions are known as pathogenicity islands (PAIs). In particular, the present application discloses 142 sequenced fragments (contigs) of DNA from two pools of cosmids covering pathogenicity islands PAI IV and PAI V located on the chromosome of the uropathogenic Escherichia coli J96. Further disclosed are 351 predicted protein-coding open reading frames within the sequenced fragments.
AN 2002:141608 USPATFULL
TI Nucleotide sequence of Escherichia coli pathogenicity islands

IN Dillon, Patrick J., Carlsbad, CA, UNITED STATES
Choi, Gil H., Rockville, MD, UNITED STATES
Welch, Rodney A., Madison, WI, UNITED STATES
PA Human Genome Sciences, Inc., Rockville, MD, UNITED STATES (U.S. corporation)
PI US 2002072595 A1 20020613
AI US 2001-956004 A1 20010920 (9)
RLI Division of Ser. No. US 1997-976259, filed on 21 Nov 1997, GRANTED, Pat. No. US 6316609
PRAI US 1997-61953P 19971014 (60)
US 1996-31626P 19961122 (60)
DT Utility
FS APPLICATION
LREP HUMAN GENOME SCIENCES INC, 9410 KEY WEST AVENUE, ROCKVILLE, MD, 20850
CLMN Number of Claims: 33
ECL Exemplary Claim: 1
DRWN 2 Drawing Page(s)
LN.CNT 8481
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 6 OF 13 USPATFULL
AB A method of producing **pili** and **vaccines** containing **pili** is described using bacteria harboring mutations that facilitate detachment of **pili** from the bacteria. Wild type **pili** have known immunoprotective effects in treating urinary tract infections. The mutant **pili** produced by this method are also shown to have such immunoprotective effects. Therefore, the **pili** may be used to make **vaccines** for treating urinary tract infections.
AN 2002:105686 USPATFULL
TI Dissociated **pili**, their production and use
IN O'Hanley, Peter, Washington, DC, UNITED STATES
Denich, Kenneth, Edmonton, CANADA
PI US 2002054888 A1 20020509
AI US 2001-833067 A1 20010412 (9)
PRAI US 2000-196493P 20000412 (60)
DT Utility
FS APPLICATION
LREP Stephen B. Maebius, FOLEY & LARDNER, Suite 500, 3000 K Street, N.W., Washington, DC, 20007-5109
CLMN Number of Claims: 5
ECL Exemplary Claim: 1
DRWN 8 Drawing Page(s)
LN.CNT 727

L14 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2002 ACS
AB A the authors disclose the prepn. and isolation of **pili** from Escherichia coli with deletional mutations in papH. In a mouse model of pyelonephritis, vaccination with these **pili** prevented renal colonization. In addn., the authors disclose epitopes of **papA** and the use of these immunogenic peptide in a **PapA** region that does not normally contain such a peptide.
AN 2001:780956 CAPLUS
DN 135:343274
TI Immunogenic **pili** presenting foreign peptides: vaccination against urinary tract infections
IN Denich, Kenneth; Schmidt, M. Alexander
PA O'Hanley, Peter, USA
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	WO 2001079277	A2	20011025	WO 2001-US11918	20010412
	WO 2001079277	A3	20020523		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2002142008	A1	20021003	US 2001-833079	20010412
PRAI	US 2000-196491P	P	20000412		

L14 ANSWER 8 OF 13 USPATFULL

AB The present invention relates to novel genes located in two chromosomal regions within uropathogenic E. coli that are associated with virulence. These chromosomal regions are known as pathogenicity islands (PAIs). In particular, the present application discloses 142 sequenced fragments (contigs) of DNA from two pools of cosmids covering pathogenicity islands PAI IV and PAI V located on the chromosome of the uropathogenic Escherichia coli J96. Further disclosed are 351 predicted protein-coding open reading frames within the sequenced fragments.

AN 2001:202784 USPATFULL

TI Nucleotide sequence of Escherichia coli pathogenicity islands

IN Dillon, Patrick J., Gaithersburg, MD, United States
Choi, Gil H., Rockville, MD, United States
Welch, Rodney A., Madison, WI, United States

PA Human Genome Sciences, Inc., Rockville, MD, United States (U.S. corporation)
Wisconsin Alumni Research Foundation, Madison, WI, United States (U.S. corporation)

PI	US 6316609	B1	20011113
AI	US 1997-976259		19971121 (8)
PRAI	US 1997-61953P		19971014 (60)
	US 1996-31626P		19961122 (60)

DT Utility

FS GRANTED

EXNAM Primary Examiner: Clark, Deborah J. R.; Assistant Examiner: Sorbello, Eleanor

LREP Human Genome Sciences, Inc.

CLMN Number of Claims: 113

ECL Exemplary Claim: 1

DRWN 2 Drawing Figure(s); 2 Drawing Page(s)

LN.CNT 3533

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 9 OF 13 USPATFULL

AB The DegP (HtrA) protease is a multifunctional protein essential for the removal of misfolded and aggregated proteins in the periplasm. The present invention provides an assay for inhibitors of DegP activity, comprising mixing a suspected inhibitor of DegP activity with DegP and a suitable substrate (preferably a native substrate of DegP such as **PapA**) and detecting changes in DegP activity. DegP has been shown to be essential for virulence in several Gram negative pathogens. Only three natural targets for DegP have been described: colicin A lysis protein (Cal), pilin subunits (K88, K99, Pap) and recently HMW1 and HMW2 from Hemophilus influenzae. In vitro, DegP has shown weak protease activity on casein and several other non-native substrates. The present inventors have identified the major pilin subunit of the Pap pilus, **PapA**, as a native DegP substrate and demonstrated binding and proteolysis of this substrate in vitro. Using an NH.sub.2 -terminal affinity tag the present inventors have purified **PapA** away

from the PapD chaperone, in the presence of denaturant, to use as a proteolysis substrate. This finding will allow the identification of the DegP recognition and cleavage sites in substrate proteins, and further, allow the design of small molecule inhibitors of protease function.

AN 2001:185058 USPATFULL
TI DegP periplasmic protease a new anti-infective target and an in vitro assay for DegP protease function
IN Jones, Hal C., Corvallis, OR, United States
Liu, Christopher, Cambridge, MA, United States
Hultgren, Scott J., Town and Country, MO, United States
Hruby, Dennis E., Albany, OR, United States
Franke, Christine A., Albany, OR, United States
Evans, Amy K., West Linn, OR, United States
PA Washington University, St. Louis, MO, United States (U.S. corporation)
Siga Pharmaceuticals, New York, NY, United States (U.S. corporation)
PI US 6306619 B1 20011023
AI US 2000-605858 20000629 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Mosher, Mary E.
LREP Burns, Doane, Swecker & Mathis, L.L.P.
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 12 Drawing Figure(s); 8 Drawing Page(s)
LN.CNT 615
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 10 OF 13 USPATFULL
AB An antigen which, as its major immunizing component, comprises a determinant of an adhesin polypeptide or an immunogenically active subsequence thereof or a precursor therefor which is convertible to an immunogenically active form, antibodies against which determinant react with the adhesin polypeptide produced by pathogenic adhesin-forming bacteria which adhere to mammalian tissue, antibodies against such antigen, and DNA expressing, as a principal gene product thereof, such antigen.

AN 2001:158467 USPATFULL
TI Anti-bodies binding adhesin-derived antigens
IN Lindberg, Frederik Carl, Sandviken, Sweden
Lund, Bjorn Olof, Umea, Sweden
Baga, Britt Monika, Umea, Sweden
Norgen, Mari Elisabet, Umea, Sweden
Goransson, Mikael, Umea, Sweden
Uhlin, Bernt Eric, Umea, Sweden
Normark, Jan Staffan, Holmsund, Sweden
Lark, David Lee, Umea, Sweden
PA Symbicom Aktiebolag, Umea, Sweden (non-U.S. corporation)
PI US 6291649 B1 20010918
AI US 1998-75396 19980511 (9)
RLI Division of Ser. No. US 1995-447685, filed on 23 May 1995, now patented, Pat. No. US 5804198 Continuation of Ser. No. US 1993-123032, filed on 20 Sep 1993, now abandoned Continuation of Ser. No. US 1992-856829, filed on 23 Mar 1992, now abandoned Continuation of Ser. No. US 1991-678167, filed on 28 Mar 1991, now abandoned Continuation of Ser. No. US 1988-245469, filed on 16 Sep 1988, now abandoned Continuation of Ser. No. US 817849
PRAI DK 1984-2190 19840502
DT Utility
FS GRANTED
EXNAM Primary Examiner: Graser, Jennifer E.
LREP Cooper, Iver P.
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)

LN.CNT 2145
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 11 OF 13 USPATFULL
AB An antigen which, as its major immunizing component, comprises a determinant of an adhesin polypeptide or an immunogenically active subsequence thereof or a precursor therefor which is convertible to an immunogenically active form, antibodies against which determinant react with the adhesin polypeptide produced by pathogenic adhesin-forming bacteria which adhere to mammalian tissue, antibodies against such antigen, and DNA expressing, as a principal gene product thereof, such antigen.
AN 1998:108037 USPATFULL
TI **Vaccines** against disease caused by pathogenic pilus-forming bacteria
IN Lindberg, Frederik Carl, Sandviken, Sweden
Lund, Bjorn Olof, Ume.ang., Sweden
B.ang.ga, Britt Monika, Ume.ang., Sweden
Norgren, Mari Elisabet, Ume.ang., Sweden
Goransson, Mikael, Ume.ang., Sweden
Uhlin, Bernt Eric, Ume.ang., Sweden
Normark, Jan Staffan, Holmsund, Sweden
Lark, David Lee, Ume.ang., Sweden
PA Symbicom Aktiebolag, Umea, Sweden (non-U.S. corporation)
PI US 5804198 19980908
AI US 1995-447685 19950523 (8)
RLI Continuation of Ser. No. US 1993-123032, filed on 20 Sep 1993, now abandoned which is a continuation of Ser. No. US 1992-856829, filed on 23 Mar 1992, now abandoned which is a continuation of Ser. No. US 1991-678167, filed on 28 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-245469, filed on 16 Sep 1988, now abandoned which is a division of Ser. No. US 1986-817849, filed on 19 Feb 1986, now patented, Pat. No. US 4795803
PRAI DK 1984-2190 19840502
DT Utility
FS Granted
EXNAM Primary Examiner: Sidberry, Hazel F.
LREP Cooer, Iver P.
CLMN Number of Claims: 38
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)
LN.CNT 2188
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L14 ANSWER 12 OF 13 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
AB Pyelonephritis-associated **pili** (Pap) are important in the pathogenesis of ascending, unobstructive Escherichia coli-caused renal infections because these surface bacterial organelles mediate diagalactoside-specific binding to host uroepithelial cells. Pap are composed of many different polypeptides, of which only the tip proteins mediate specific binding. The **PapA** moiety polymerizes to form the bulk of the pilus structure and has been employed in **vaccines** despite its lack of Gal.alpha.(1-4)Gal receptor specificity. Animal recipients of **PapA** pilus-based **vaccines** are protected against experimental pyelonephritis caused by homologous and heterologous Gal-Gal-binding uropathogenic E. coli strains. Specific **PapA** immunoglobulin G antibodies in urine are correlated with protection in these infection models. The nucleotide sequences of the gene encoding **PapA** were determined for three E. coli clones expressing F71, F72, and F9 **pili** and were compared with corresponding sequences for other F serotypes. Specific rabbit antisera were employed in enzyme-linked immunosorbent assays to study the cross-reactivity between Gal-Gal **pili** purified from recombinant strains expressing F71, F72, F9, or

F13 **pili** and among 60 Gal-Gal-binding wild-type strains. We present data which corroborate the concept that **papA** genes are highly homologous and encode proteins which exhibit > 70% homology among **pili** different serotypes. The differences primarily occur in the cysteine-cysteine loop and variable regions and constitute the basis for serological diversity of these **pili**. Although there are differences in primary structures among these **pili**, antisera raised against **pili** of one serotype cross-reacted frequently with many other Gal-Gal **pili** of different serotypes. Furthermore, antisera raised against **pili** of the F13 serotype cross-reacted strongly or moderately with 52 (86%) of 60 wild-type Gal-Gal-binding E. coli strains. These data suggest that there are common immunogenic domains among these proteins. These additional data further support the hypothesis that broadly cross-protective **PapA** pilus **vaccines** for the immunoprophylaxis of pyelonephritis might be developed.

AN 1992:28956 BIOSIS
DN BA93:18231
TI DNA SEQUENCES OF THREE **PAPA** GENES FROM UROPATHOGENIC ESCHERICHIA-COLI STRAINS EVIDENCE OF STRUCTURAL AND SEROLOGICAL CONSERVATION.
AU DENICH K; BLYN L B; CRAIU A; BRAATEN B A; HARDY J; LOW D A; O'HANLEY P D
CS DEP. MICROBIOLOGY IMMUNOLOGY, STANFORD UNIVERSITY, STANFORD, CALIF. 94305.
SO INFECT IMMUN, (1991) 59 (11), 3849-3858.
CODEN: INFIBR. ISSN: 0019-9567.
FS BA; OLD
LA English

L14 ANSWER 13 OF 13 USPATFULL
AB An antigen which, as its major immunizing component, comprises a determinant of an adhesin polypeptide or an immunogenically active subsequence thereof or a precursor therefor which is convertible to an immunogenically active form, antibodies against which determinant react with the adhesion polypeptide produced by pathogenic adhesin-forming bacteria which adhere to mammalian tissue, antibodies against such antigen, and DNA expressing, as a principal gene product thereof, such antigen.
AN 89:1283 USPATFULL
TI Adhesin antigens, antibodies and DNA fragment encoding the antigen, methods and means for diagnosis and immunization etc.
IN Lindberg, Frederick C., Sandviken, Sweden
Lund, Bjorn O., Umea, Sweden
Baga, Britt M., Umea, Sweden
Norgren, Mari E., Umea, Sweden
Goransson, Mikael, Umea, Sweden
Uhlin, Bernt E., Umea, Sweden
Normark, Jan S., Holmsund, Sweden
Lark, David L., Umea, Sweden
PA Syn-Tek AB, Umea, Sweden (non-U.S. corporation)
PI US 4795803 19890103
WO 8505037 19851121
AI US 1986-817849 19860219 (6)
WO 1985-DK45 19850502
19860219 PCT 371 date
19860219 PCT 102(e) date
PRAI DK 1984-2190 19840502
DT Utility
FS Granted
EXNAM Primary Examiner: Warden, Robert J.; Assistant Examiner: Saunders, David A.
LREP White, John P.
CLMN Number of Claims: 10
ECL Exemplary Claim: 1
DRWN 3 Drawing Figure(s); 3 Drawing Page(s)

LN.CNT 1912
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

L6 ANSWER 1 OF 24 USPATFULL

AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 2002:272761 USPATFULL

TI Directed evolution of novel binding proteins

IN Ladner, Robert Charles, Ijamsville, MD, UNITED STATES
Guterman, Sonia Kosow, Belmont, MA, UNITED STATES
Roberts, Bruce Lindsay, Milford, MA, UNITED STATES
Markland, William, Milford, MA, UNITED STATES
Ley, Arthur Charles, Newton, MA, UNITED STATES
Kent, Rachel Baribault, Boxborough, MA, UNITED STATES

PI US 2002150881 A1 20021017

AI US 2001-781988 A1 20010214 (9)

RLI Continuation of Ser. No. US 1998-192067, filed on 16 Nov 1998, ABANDONED Continuation of Ser. No. US 1995-415922, filed on 3 Apr 1995, PATENTED Continuation of Ser. No. US 1993-9319, filed on 26 Jan 1993, PATENTED Division of Ser. No. US 1991-664989, filed on 1 Mar 1991, PATENTED Continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, ABANDONED Continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, ABANDONED

PRAI WO 1989-US3731 19890901

DT Utility

FS APPLICATION

LREP BROWDY AND NEIMARK, P.L.L.C., 624 Ninth Street, N.W., Washington, DC, 20001

CLMN Number of Claims: 18

ECL Exemplary Claim: 1

DRWN 16 Drawing Page(s)

LN.CNT 15696

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 2 OF 24 USPATFULL

AB A method of producing **pili** and **vaccines** containing **pili** are described using bacteria that express at least one immunogenic peptide in a PapA region that does not normally contain such a peptide.

AN 2002:258441 USPATFULL

TI Immunogenic **pili** presenting foreign peptides, their production and use

IN O'Hanley, Peter, Washington, DC, UNITED STATES
Denich, Kenneth, Edmonton, CANADA
Schmidt, M. Alexander, Muenster, GERMANY, FEDERAL REPUBLIC OF

PI US 2002142008 A1 20021003

AI US 2001-833079 A1 20010412 (9)

PRAI US 2000-196491P 20000412 (60)

DT Utility

FS APPLICATION

LREP FOLEY AND LARDNER, SUITE 500, 3000 K STREET NW, WASHINGTON, DC, 20007

CLMN Number of Claims: 7

ECL Exemplary Claim: 1
DRWN 5 Drawing Page(s)
LN.CNT 967
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 3 OF 24 USPATFULL
AB The invention features method of inhibiting angiogenesis in a subject. The method includes decreasing syndecan-4 activity or expression in a cell, tissue, or subject.
AN 2002:92068 USPATFULL
TI Methods of modulating wound healing and angiogenesis
IN Goetinck, Paul F., Boston, MA, UNITED STATES
PI US 2002048585 A1 20020425
AI US 2001-900288 A1 20010706 (9)
PRAI US 2000-216247P 20000706 (60)
DT Utility
FS APPLICATION
LREP DIANA M. COLLAZO, Fish & Richardson P.C., 225 Franklin Street, Boston, MA, 02110-2804
CLMN Number of Claims: 16
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 1486
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 4 OF 24 USPATFULL
AB The invention provides a highly efficient, rapid, and cost effective method of linking nucleic acid components in a predetermined order to produce a nucleic acid multicomponent construct. The invention further provides nucleic acid components, each nucleic acid component comprising a double stranded nucleic acid molecule having at least one single stranded 5' or 3' terminal sequence, the terminal sequence having sufficient complementarity to either a terminal sequence in a separate nucleic acid component or to a sequence in a linking nucleic acid molecule so as to allow for specific annealing of complementary sequences and linkage of the components in a predetermined order. Kits containing reagents required to practice the method of the invention are also provided.
AN 2002:48253 USPATFULL
TI METHOD AND KITS FOR PREPARING MULTICOMPONENT NUCLEIC ACID CONSTRUCTS
IN HARNEY, PETER D., ALISO VIEJO, CA, UNITED STATES
HARNEY, JENNIFER, ALISO VIEJO, CA, UNITED STATES LR
PI US 2002028444 A1 20020307
AI US 1998-220398 A1 19981224 (9)
RLI Continuation-in-part of Ser. No. US 1997-877034, filed on 16 Jun 1997, GRANTED, Pat. No. US 6277632 A 371 of International Ser. No. WO 1997-US10523, filed on 16 Jun 1997, UNKNOWN
PRAI US 1996-19869P 19960617 (60)
DT Utility
FS APPLICATION
LREP ROPES & GRAY, ONE INTERNATIONAL PLACE, BOSTON, MA, 02110-2624
CLMN Number of Claims: 42
ECL Exemplary Claim: 1
DRWN 5 Drawing Page(s)
LN.CNT 3518
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 5 OF 24 USPATFULL
AB A strategically modified hepatitis B core protein is described, where an insert is provided, preferably in an immunodominant region of the nucleocapsid protein, containing a chemically reactive amino acid residue. The modified hepatitis B core protein or its aggregated nucleocapsid protein particles can be pendently linked to a hapten to form a modified nucleocapsid conjugate. Such a conjugate is useful in

the preparation of **vaccines** or antibodies. The modified hepatitis B core protein can also be modified to include a T cell epitope.

AN 2001:71101 USPATFULL
TI Strategically modified hepatitis B core proteins and their derivatives
IN Birkett, Ashley J., Solana Beach, CA, United States
PA Immune Complex Corporation, San Diego, CA, United States (U.S. corporation)
PI US 6231864 B1 20010515
AI US 1999-248588 19990211 (9)
PRAI US 1998-74537P 19980212 (60)
DT Utility
FS Granted
EXNAM Primary Examiner: Wortman, Donna C.
LREP Welsh & Katz, Ltd.
CLMN Number of Claims: 22
ECL Exemplary Claim: 1
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)
LN.CNT 1665
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 6 OF 24 USPATFULL
AB Transgenically produced prolactin and methods of making and using transgenically produced prolactin are disclosed.
AN 2001:47611 USPATFULL
TI Transgenically produced prolactin
IN Echelard, Yann, Brookline, MA, United States
Wilburn, Brian, Boston, MA, United States
PA Genzyme Transgenics Corporation, Framingham, MA, United States (U.S. corporation)
PI US 6210736 B1 20010403
AI US 1998-94781 19980615 (9)
PRAI US 1997-49856P 19970617 (60)
DT Utility
FS Granted
EXNAM Primary Examiner: Hauda, Karen M.; Assistant Examiner: Shukla, Ram R.
LREP Fish & Richardson P.C.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 1936
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 7 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB A method of generating chimeric genes encoding a fusion product of the agfA fimbrin and a foreign protein, such as an antigen, in a Salmonella host by chromosomal gene replacement is described. One embodiment of the invention is exemplified by the expression of a model epitope (PT3) obtained from the GP63 protein of Leishmania major, by formation of recombinant agfA genes encoding PT3 fusing proteins recombined at 10 different sites throughout the agfA gene. These fusions are shown to be expressed in the thin aggregative **fimbriae** on the surface of bacterial cell. The AgfA fimbrin of Salmonella (CsgA for E. coli) provides a flexible and stable vehicle for the expression of **foreign epitopes** in enterobacteriaceae and the subsequent thin aggregative fimbrae (curli) expression product provide an ideal organelle for presentation of the **foreign epitopes** at the cell surface.
AN 2000:725786 CAPLUS
DN 133:306338
TI Use of the agfA fimbrin of Salmonella to present foreign proteins on the surface of a bacterial host
IN White, Aaron P.; Doran, James L.; Collison, S. Karen; Kay, William W.
PA Innovation and Development Corporation, University of Victoria, Can.

SO PCT Int. Appl., 139 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000060102	A2	20001012	WO 2000-CA356	20000405
WO 2000060102	A3	20010104		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI US 1999-127888P P 19990405

L6 ANSWER 8 OF 24 USPATFULL
AB The present invention is directed to recombinant genes and their encoded proteins which are recombinant flagellin fusion proteins. Such fusion proteins comprise amino acid sequences specifying an epitope encoded by a flagellin structural gene and an epitope of a heterologous organism which is immunogenic upon introduction of the fusion protein into a vertebrate host. The recombinant genes and proteins of the present invention can be used in **vaccine** formulations, to provide protection against infection by the heterologous organism, or to provide protection against conditions or disorders caused by an antigen of the organism. In a specific embodiment, attenuated invasive bacteria expressing the recombinant flagellin genes of the invention can be used in live **vaccine** formulations. The invention is illustrated by way of examples in which epitopes of malaria circumsporozoite antigens, the B subunit of Cholera toxin, surface and presurface antigens of Hepatitis B. VP7 polypeptide of rotavirus, envelope glycoprotein of HIV, and M protein of Streptococcus, are expressed in recombinant flagellin fusion proteins which assemble into functional flagella, and which provoke an immune response directed against the heterologous epitope, in a vertebrate host.
AN 2000:134749 USPATFULL
TI Recombinant flagellin **vaccines**
IN Majarian, William R., Mt. Royal, NJ, United States
Stocker, Bruce A. D., Palo Alto, CA, United States
Newton, Salete M. C., Mountain View, CA, United States
PA American Cyanamid Company, Madison, NJ, United States (U.S. corporation)
The Board of Trustees of the Leland Stanford Junior University, Stanford, CA, United States (U.S. corporation)
PI US 6130082 20001010
AI US 1992-837668 19920214 (7)
RLI Continuation of Ser. No. US 1989-348430, filed on 5 May 1989, now abandoned which is a continuation-in-part of Ser. No. US 1988-190570, filed on 5 May 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Mosher, Mary E.
LREP Hamilton, Brook, Smith & Reynolds, P.C.
CLMN Number of Claims: 3
ECL Exemplary Claim: 1
DRWN 15 Drawing Figure(s); 17 Drawing Page(s)
LN.CNT 2404
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 9 OF 24 USPATFULL

AB A CS31A protein capsule subunit having an aminoacid sequence modified by at least one heterologous peptide, the CS31A protein capsule comprising said subunit, and micro-organisms having the CS31A protein capsule with its subunit aminoacid sequence modified by at least one heterologous peptide, are disclosed. Methods for preparing said subunits, CS31A protein capsules comprising same, and micro-organisms having CS31A protein capsules, as well as the use thereof for preparing **vaccines**, producing peptides and preparing immunoassays, are also disclosed.
AN 2000:98007 USPATFULL
TI ClpG subunit of CS31A protein capsule containing heterologous peptides
IN Girardeau, Jean-Pierre, Saint Genes Champanelle, France
Martin, Christine, La Roche Blanche, France
Mechin, Marie-Claire, Beaumont, France
Der Vartanian, Maurice, Saint Genes Champanelle, France
Bousquet, Fran.cedilla.ois, Ceyrat, France
PA Institut National de la Recherche Agronomique-INRA, Paris, France (non-U.S. corporation)
PI US 6096321 20000801
WO 9414967 19940707
AI US 1996-491954 19960216 (8)
WO 1993-FR1281 19931221
19960216 PCT 371 date
19960216 PCT 102(e) date
PRAI FR 1992-15464 19921222
DT Utility
FS Granted
EXNAM Primary Examiner: Chin, Christopher L.; Assistant Examiner: Ryan, V.
LREP Schnader Harrison Segal & Lewis LLP
CLMN Number of Claims: 29
ECL Exemplary Claim: 1
DRWN 61 Drawing Figure(s); 53 Drawing Page(s)
LN.CNT 3468
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 10 OF 24 USPATFULL
AB The present invention is concerned with vaccination of mammals against GnRH. The **vaccine** comprises a GnRH peptide conjugate to E. coli fimbrial-filaments and elicits an immune response against GnRH.
AN 2000:12446 USPATFULL
TI Carrier system against GnRH
IN Van Der Zee, Anna, Woerden, Netherlands
Van Die, Irma Marianne, Gouda, Netherlands
Hoekstra, Willem Pieter Martin, Zeist, Netherlands
Gielen, Josephus Theodorus, St. Antohonis, Netherlands
PA Akzo Nobel N.V., Arnhem, Netherlands (non-U.S. corporation)
PI US 6019983 20000201
AI US 1995-521079 19950829 (8)
RLI Continuation of Ser. No. US 1993-78661, filed on 16 Jun 1993, now abandoned
PRAI NL 1982-92201775 19820619
DT Utility
FS Granted
EXNAM Primary Examiner: Sidberry, Hazel F.
LREP Gormley, Mary E., Blackstone, William M.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN 9 Drawing Figure(s); 9 Drawing Page(s)
LN.CNT 1366
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 11 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
AB Recombinant live oral **vaccines** expressing pathogen-derived

antigens offer a unique set of attractive properties. Among these are the simplicity of administration, the capacity to induce mucosal and systemic immunity, and the advantage of permitting genetic manipulation for optimal antigen presentation. In this study, the benefit of having a heterologous antigen expressed on the surface of a live vector rather than intracellularly was evaluated. Accordingly, the immune response of mice immunized with a Salmonella enterica serovar Typhimurium **vaccine** strain expressing the Escherichia coli 987P fimbrial antigen on its surface (Fas+) was compared with the expression in the periplasmic compartments (Fas-). Orally immunized BALB/c mice showed that 987P fimbriated Salmonella serovar Typhimurium CS3263 (aroA asd) with pCS151 (fas+ asd+) elicited a significantly higher level of 987P-specific systemic immunoglobulin G (IgG) and mucosal IgA than serovar Typhimurium CS3263 with pCS152 (fasD mutant, asd+) expressing 987P periplasmic antigen. Further studies were aimed at determining whether the 987P **fimbriae** expressed by serovar Typhimurium chi4550 (cya crp asd) could be used as carriers of **foreign epitopes**. For this, the **vaccine** strain was genetically engineered to express chimeric **fimbriae** carrying the transmissible gastroenteritis virus (TGEV) C (379-388) and A (521-531) epitopes of the spike protein inserted into the 987P major fimbrial subunit FasA. BALB/c mice administered orally serovar Typhimurium chi4550 expressing the chimeric **fimbriae** from the tet promoter in pCS154 (fas+ asd+) produced systemic antibodies against both **fimbria** and the TGEV C epitope but not against the TGEV A epitope. To improve the immunogenicity of the chimeric **fimbriae**, the in vivo inducible nirB promoter was inserted into pCS154, upstream of the fas genes, to create pCS155. In comparison with the previously used **vaccine**, BALB/c mice immunized orally with serovar Typhimurium chi4550/pCS155 demonstrated significantly higher levels of serum IgG and mucosal IgA against 987P **fimbria**. Moreover, mucosal IgA against the TGEV C epitope was only detected with serovar Typhimurium chi4550/pCS155. The induced antibodies also recognized the epitopes in the context of the full-length TGEV spike protein. Hence, immune responses to heterologous chimeric **fimbriae** on Salmonella **vaccine** vectors can be optimized by using promoters known to be activated in vivo.

AN 2000:291353 BIOSIS
DN PREV200000291353
TI Mucosal and systemic immune responses to chimeric **fimbriae** expressed by Salmonella enterica serovar Typhimurium **vaccine** strains.
AU Chen, Huaiqing; Schifferli, Dieter M. (1)
CS (1) University of Pennsylvania School of Veterinary Medicine, 3800 Spruce St., Philadelphia, PA, 19104-6049 USA
SO Infection and Immunity, (June, 2000) Vol. 68, No. 6, pp. 3129-3139. print. ISSN: 0019-9567.
DT Article
LA English
SL English

L6 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB A review, with 50 refs., discussing fimbrial display of **foreign epitopes**, heterologous antigen display, antigen display by other **fimbriae**, and random library display.
AN 2001:3230 CAPLUS
DN 134:176932
TI Fimbrial surface display systems in bacteria: from **vaccines** to random libraries
AU Klemm, Per; Schembri, Mark A.
CS Department of Microbiology, Technical University of Denmark, Lyngby, DK-2800, Den.
SO Microbiology (Reading, United Kingdom) (2000), 146(12), 3025-3032 CODEN: MROBEO; ISSN: 1350-0872
PB Society for General Microbiology

DT Journal; General Review
LA English
RE.CNT 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 2
AB Objective: To construct the display vector based on the CS3 **pili** of enterotoxigenic Escherichia coli. Methods: The secondary structure antigen epitopes, hydrophilicity and flexibility of CS3 subunit were predicted with the Goldkey software. Based on the prediction, the site for inserting heterologous epitopes was chosen. Mutation was done using the overlapping extention PCR. The gene fragment coding for the VP1 of foot-mouth disease virus (FMDV) was synthesized and inserted into CS3. The surface expression of hybrid protein was examined using whole-cell ELISA, electron microscopy and immuno-electron microscopy. Mice were immunized by injecting the recombinant bacteria intraperitoneally to evaluate the immunogenicity of the hybrid proteins. Results: The VP1 of FMDV was displayed on the surface of the recombinant cells. The fusion proteins were expressed as hybrid **pili**. Mice produced antibody response against CS3 and the VP1 of FMDV. Conclusion: The CS3 **pili** can be a vector to express the **foreign epitopes** on the surface of the recombinant cells, and it may probably be an expression vector for the construction of the live gene engineering **vaccine**.
AN 2001:49887 BIOSIS
DN PREV200100049887
TI Construction of a display vector based on the CS3 **pili** of enterotoxigenic Escherichia coli.
AU Gao Rongkai; Zhang Zhaoshan (1); Li Shuqin
CS (1) Academy of Military Medical Science, Institute of Biotechnology, Beijing, 100071: zhangzs@nic.bmi.ac.cn China
SO Zhonghua Weishengwuxue He Mianyixue Zazhi, (November, 2000) Vol. 20, No. 6, pp. 485-488. print.
ISSN: 0254-5101.
DT Article
LA Chinese
SL Chinese; English

L6 ANSWER 14 OF 24 SCISEARCH COPYRIGHT 2002 ISI (R)
AB The display of peptide segments on the surface of bacteria offers many new and exciting applications in biotechnology and medical research. **Fimbria**-assisted display of heterologous sequences is a paradigm for chimeric organelle display on bacteria. Fimbriac are particularly attractive candidates for epitope display for several reasons: (1) they are present in extremely high numbers at the cell surface, (2) they are strong immunogens, (3) they possess inherent adhesive properties, and (4) they can be easily purified. The majority of work dealing with **fimbria**-assisted peptide display has been focused on the development of recombinant **vaccines**. A number of different fimbrial types have been used to display immune-relevant sectors of various foreign proteins. Chimeric fimbrial **vaccines** can be used in the context of purified proteins, however the potential also exists to exploit this technology for the development of live recombinant **vaccines**. Work has also bern performed demonstrating the amenability of **fimbriae** towards the powerful technology of random peptide display. This review summarises the current state of research in this field.
AN 2000:632511 SCISEARCH
GA The Genuine Article (R) Number: 344MZ
TI **Fimbriae**-assisted bacterial surface display of heterologous peptides
AU Klemm P (Reprint); Schembri M A
CS TECH UNIV DENMARK, DEPT MICROBIOL, BLDG 301, DK-2800 LYNGBY, DENMARK

(Reprint)
CYA DENMARK
SO INTERNATIONAL JOURNAL OF MEDICAL MICROBIOLOGY, (JUL 2000) Vol. 290, No. 3, pp. 215-221.
Publisher: URBAN & FISCHER VERLAG, BRANCH OFFICE JENA, P O BOX 100537, D-07705 JENA, GERMANY.
ISSN: 1438-4221.
DT Article; Journal
FS LIFE
LA English
REC Reference Count: 41
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L6 ANSWER 15 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 3
AB The strong immunogenicity of bacterial **fimbriae** results from their polymeric and proteinaceous nature, and the protective role of these immunogens in experimental or commercial **vaccines** is associated with their capacity to induce antiadhesive antibodies. **Fimbria** -mediated intestinal colonization by enteropathogens typically leads to similar antibody responses. The possibility of taking advantage of these properties was investigated by determining whether enteroadhesive **fimbriae**, like the 987P **fimbriae** of enterotoxigenic Escherichia coli, can serve as carriers for foreign antigens without losing their adhesive characteristics. Random linker insertion mutagenesis of the fasA gene encoding the major 987P subunit identified five different mutants expressing wild-type levels of fimbriation. The linker insertion sites of these mutants were used to introduce three continuous segments of viral surface glycoproteins known to be accessible to antibodies. These segments encode residues 11 to 19 or 272 to 279 of herpes simplex virus type 1 (HSV-1) glycoprotein D (gD(11-19) and gD(272-279), respectively) or residues 379 to 388 of the transmissible gastroenteritis virus (TGEV) spike protein (S(379-388)). Studies of bacteria expressing **fimbriae** incorporating mutated FasA subunits alone or together with wild-type FasA subunits (hybrid **fimbriae**) indicated that **foreign epitopes** were best exported and displayed on assembled **fimbriae** when they were inserted near the amino terminus of FasA. Fimbriated bacteria expressing FasA subunits carrying the HSV gD(11-19) or the TGEV S(379-388) epitope inserted between the second and third residues of mature FasA elicited high levels of foreign epitope antibodies in all rabbits immunized parenterally. Antibodies against the HSV epitope were also shown to recognize the epitope in the context of the whole gD protein. Because the 987P adhesive subunit FasG was shown to be present on mutated **fimbriae** and to mediate bacterial attachment to porcine intestinal receptors, polymeric display of **foreign epitopes** on 987P offers new opportunities to test the potential beneficial effect of enteroadhesion for mucosal immunization and protection against various enteric pathogens.
AN 1999:99340 BIOSIS
DN PREV199900099340
TI Polymeric display of immunogenic epitopes from herpes simplex virus and transmissible gastroenteritis virus surface proteins on an enteroadherent **fimbria**.
AU Rajini Rani, D. B.; Bayer, Manfred E.; Schifferli, Dieter M. (1)
CS (1) Univ. Pa. Sch. Veterinary Med., 3800 Spruce St., Philadelphia, PA 19104-6049 USA
SO Clinical and Diagnostic Laboratory Immunology, (Jan., 1999) Vol. 6, No. 1, pp. 30-40.
ISSN: 1071-412X.
DT Article
LA English

L6 ANSWER 16 OF 24 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA

molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 1998:143904 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert Charles, Ijamsville, MD, United States
Gutterman, Sonia Kosow, Belmont, MA, United States
Roberts, Bruce Lindsay, Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur Charles, Newton, MA, United States
Kent, Rachel Baribault, Boxborough, MA, United States
PA Dyax, Corp., Cambridge, MA, United States (U.S. corporation)
PI US 5837500 19981117
AI US 1995-415922 19950403 (8)
RLI Continuation of Ser. No. US 1993-9319, filed on 26 Jan 1993, now patented, Pat. No. US 5403484 which is a division of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Ulm, John
LREP Cooper, Iver P.
CLMN Number of Claims: 43
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15973
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 17 OF 24 USPATFULL
AB The present invention is concerned with vaccination of mammals against GnRH. The **vaccine** comprises a GnRH peptide conjugate to E. coli fimbrial-filaments and elicits an immune response against GnRH.
AN 97:101896 USPATFULL
TI Carrier system against GNRH
IN Van Der Zee, Anna, Woerden, Netherlands
Van Die, Irma Marianne, Gouda, Netherlands
Hoekstra, Willem Pieter Martin, Zeist, Netherlands
Gielen, Josephus Theodorus, St. Antohonis, Netherlands
PA AKZO Nobel N.V., Arnhem, Netherlands (non-U.S. corporation)
PI US 5684145 19971104
AI US 1995-453588 19950530 (8)
RLI Division of Ser. No. US 1993-78661, filed on 16 Jun 1993, now abandoned
PRAI NL 1992-1775 19920618
DT Utility
FS Granted
EXNAM Primary Examiner: Sidberry, Hazel F.
LREP Gormley, Mary E.
CLMN Number of Claims: 8
ECL Exemplary Claim: 1

DRWN 9 Drawing Figure(s); 9 Drawing Page(s)
LN.CNT 1299
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 18 OF 24 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.
AN 96:101466 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corporation, Cambridge, MA, United States (U.S. corporation)
PI US 5571698 19961105
AI US 1993-57667 19930618 (8)
DCD 20100629
RLI Continuation of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Ulm, John
LREP Cooper, Iver P.
CLMN Number of Claims: 83
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15323
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 19 OF 24 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment,

the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 95:29292 USPATFULL
TI Viruses expressing chimeric binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corporation, Cambridge, MA, United States (U.S. corporation)
PI US 5403484 19950404
AI US 1993-9319 19930126 (8)
RLI Division of Ser. No. US 1991-664989, filed on 1 Mar 1991, now patented, Pat. No. US 5223409 which is a continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-240160, filed on 2 Sep 1988, now abandoned
PRAI WO 1989-3731 19890901
DT Utility
FS Granted
EXNAM Primary Examiner: Hill, Jr., Robert J.; Assistant Examiner: Ulm, John D.
LREP Cooper, Iver P.
CLMN Number of Claims: 49
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 14368
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 20 OF 24 USPATFULL
AB In order to obtain a novel binding protein against a chosen target, DNA molecules, each encoding a protein comprising one of a family of similar potential binding domains and a structural signal calling for the display of the protein on the outer surface of a chosen bacterial cell, bacterial spore or phage (genetic package) are introduced into a genetic package. The protein is expressed and the potential binding domain is displayed on the outer surface of the package. The cells or viruses bearing the binding domains which recognize the target molecule are isolated and amplified. The successful binding domains are then characterized. One or more of these successful binding domains is used as a model for the design of a new family of potential binding domains, and the process is repeated until a novel binding domain having a desired affinity for the target molecule is obtained. In one embodiment, the first family of potential binding domains is related to bovine pancreatic trypsin inhibitor, the genetic package is M13 phage, and the protein includes the outer surface transport signal of the M13 gene III protein.

AN 93:52487 USPATFULL
TI Directed evolution of novel binding proteins
IN Ladner, Robert C., Ijamsville, MD, United States
Guterman, Sonia K., Belmont, MA, United States
Roberts, Bruce L., Milford, MA, United States
Markland, William, Milford, MA, United States
Ley, Arthur C., Newton, MA, United States
Kent, Rachel B., Boxborough, MA, United States
PA Protein Engineering Corp., Cambridge, MA, United States (U.S. corporation)
PI US 5223409 19930629
AI US 1991-664989 19910301 (7)
RLI Continuation-in-part of Ser. No. US 1990-487063, filed on 2 Mar 1990, now abandoned And a continuation-in-part of Ser. No. US 1988-240160,

filed on 2 Sep 1988, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Hill, Jr., Robert J.; Assistant Examiner: Ulm, John D.
LREP Cooper, Iver P.
CLMN Number of Claims: 66
ECL Exemplary Claim: 1
DRWN 16 Drawing Figure(s); 16 Drawing Page(s)
LN.CNT 15410
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 21 OF 24 USPATFULL
AB The present invention relates to recombinant vector/host systems which can direct the expression of foreign genes under the control of the Heliothis polyhedrin promoter. Using the systems of the present invention, a heterologous gene of interest can be expressed as an unfused peptide or protein, a fusion protein, or as a recombinant occlusion body which comprises crystallized polyhedrin fusion proteins bearing the heterologous gene product on the surface of or within the occlusion body. The recombinant proteins or occlusion bodies of the present invention have uses in **vaccine** formulations and immunoassays, as biological insecticides, and as expression systems for the production of foreign peptides or proteins.
AN 91:66733 USPATFULL
TI Heliothis expression systems
IN Fraser, Malcolm J., South Bend, IN, United States
Rosen, Elliot D., South Bend, IN, United States
Ploplis, Victoria A., South Bend, IN, United States
PA American Biogenetic Science, Inc., Copiague, NY, United States (U.S. corporation)
PI US 5041379 19910820
AI US 1988-168109 19880314 (7)
RLI Continuation-in-part of Ser. No. US 1987-26499, filed on 16 Mar 1987, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Schwartz, Richard A.; Assistant Examiner: Peet, Richard C.
LREP Pennie & Edmonds
CLMN Number of Claims: 15
ECL Exemplary Claim: 1
DRWN 26 Drawing Figure(s); 25 Drawing Page(s)
LN.CNT 3494
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 22 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB The K88 **fimbriae** of enterotoxigenic Escherichia coli are strongly immunogenic antigens that can be used to evoke protective immunity. To find out whether these **fimbriae** can be used as carriers for **foreign epitopes**, a high variable region present in the primary structure of the different K88 variants was replaced with five different heterologous epitopes to investigate to what extent these insertions affected the expression, assembly (biogenesis), stability and immunogenic properties of the resulting hybrid **fimbriae**. Amino acid residues 163-173, were replaced using site-directed in vitro mutagenesis and the hybrid **fimbriae** were tested for these aspects using ELISA, immunoelectronmicroscopy and immunoblotting. Replacement of this highly variable region did not affect the biosynthesis of **fimbriae**, although all mutations tested resulted in a reduced expression depending on the epitope inserted. Testing of the different hybrid **fimbriae** with a panel of monoclonal antibodies raised against the various K88 serotypes K88ab, K88ac and K88ad indicated that replacement of amino acid sequence 163-173 did not affect conserved or K88ab specific epitopes but the K88ac and

K88ad specific conformation was lost. Immunization with hybrid **fimbriae** raises antibodies specific for the inserted heterologous epitopes.

AN 1990:426380 BIOSIS
DN BA90:87181
TI K88 **FIMBRIAE** AS CARRIERS OF HETEROLOGOUS ANTIGENIC DETERMINANTS.
AU BAKKER D; VAN ZIJDERVELD F G; VAN DER VEEN S; OUDEGA B; DE GRAAF F K
CS BIOLOGISCH LABORATORIUM, VRIJE UNIVERSITEIT, DE BOELELAAN 1087, 1081 HV AMSTERDAM, NETHERLANDS.
SO MICROB PATHOG, (1990) 8 (5), 343-352.
CODEN: MIPAEV. ISSN: 0882-4010.
FS BA; OLD
LA English

L6 ANSWER 23 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 4
AB Hypervariable regions (HRs) of the major subunit of F11 **fimbriae** were exploited for insertion of **foreign epitopes**. Two insertion vectors were created that contain a unique cloning site in HR1 or HR4 respectively. Several oligonucleotides, coding for antigenic determinants derived from different pathogens, were cloned in both insertion vectors. Hybrid fimbrial subunits were generally shown to be assembled in **fimbriae** when the length of the inserted peptide did not exceed 14 amino acids. The inserted peptides appeared to be exposed in the fimbrial content. One hybrid fimbrial protein induced detectable levels of antibodies against the inserted epitope if injected into mice.
AN 1990:494282 BIOSIS
DN BA90:122628
TI EXPRESSION OF **FOREIGN EPITOPES** IN P-**FIMBRIAE** OF ESCHERICHIA-COLI.
AU VAN DIE I; VAN OOSTERHOUT J; VAN MEGEN I; BERGMANS H; HOEKSTRA W; ENGER-VALK B; BARTELING S; MOOI F
CS DEP. MEDICAL CHEMISTRY, VRIJE UNIVERSITEIT, VAN DER BOECHORSTSTRAAT 7, 1007 MC AMSTERDAM, NETH.
SO MOL GEN GENET, (1990) 222 (2-3), 297-303.
CODEN: MGGEAE. ISSN: 0026-8925.
FS BA; OLD
LA English

L6 ANSWER 24 OF 24 USPATFULL
AB The present invention is directed to recombinant baculoviruses which encode fusion polyhedrin proteins capable of forming occlusion bodies containing foreign peptides. The recombinant baculoviruses of the invention are formed by insertion into or replacement of regions of the polyhedrin gene that are not essential for occlusion body formation, with foreign DNA fragments by recombinant DNA techniques. The recombinant occlusion bodies produced in accordance with the present invention have uses in **vaccine** formulations, immunoassays, immobilized enzyme reactions, as biological insecticides, and as expression vectors.
AN 89:80739 USPATFULL
TI Recombinant baculovirus occlusion bodies in **vaccines** and biological insecticides
IN Fraser, Malcolm J., South Bend, IN, United States
Rosen, Elliot D., South Bend, IN, United States
Ploplis, Victoria A., South Bend, IN, United States
PA American Biogenetic Sciences, Inc., Copiague, NY, United States (U.S. corporation)
PI US 4870023 19890926
AI US 1988-153736 19880208 (7)
RLI Continuation-in-part of Ser. No. US 1987-26498, filed on 16 Mar 1987, now abandoned which is a continuation-in-part of Ser. No. US 1987-26499, filed on 16 Mar 1987

DT Utility
FS Granted
EXNAM Primary Examiner: Wiseman, Thomas G.; Assistant Examiner: Seidman, Stephanie
LREP Pennie & Edmonds
CLMN Number of Claims: 51
ECL Exemplary Claim: 1
DRWN 28 Drawing Figure(s); 26 Drawing Page(s)
LN.CNT 3868
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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(FILE 'HOME' ENTERED AT 12:01:09 ON 30 OCT 2002)

FILE 'AGRICOLA, LIFESCI, CONFSCI, BIOSIS, VETU, VETB, PHIN, PHIC' ENTERED AT 12:01:27 ON 30 OCT 2002

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 12:01:37 ON 30 OCT 2002

L1	644	S	FOREIGN EPITOPES
L2	138412	S	PILI OR FIMBRIAE OR FIMBRIA OR FIBRIN
L3	56	S	L1 AND L2
L4	440609	S	VACCINE
L5	36	S	L3 AND L4
L6	24		DUP REM L5 (12 DUPLICATES REMOVED)

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